

Notice of Allowability

Application No.

10/787,465

Examiner

Mark Ruthkosky

Applicant(s)

KOJIMA, KAZUO

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/22/2006.
2. ☒ The allowed claim(s) is/are 1,2 and 4-6.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

MARK RUTHKOSKY
PRIMARY EXAMINER
Mark Ruthkosky
8.31.2006

DETAILED ACTION

Drawings

The objection to the drawings filed on 2/26/2004 has been overcome by applicant's amendment.

Claim Rejections - 35 USC § 102

The rejection of claim 6 under 35 U.S.C. 102(b) as being anticipated by Matsubara et al. (US 6,241,790) has been overcome by applicant's amendment.

Claim Rejections - 35 USC § 103

The rejection of claims 1-2 and 4-6 under 35 U.S.C. 103(a) as being unpatentable over Kazuyuki (JP 2000-299,100) in view of Matsubara et al. (US 6,241,790) has been overcome by applicant's amendment.

Allowable Subject Matter

Claims 1-2 and 4-6 are allowed.

The following is an examiner's statement of reasons for allowance:

The instant claims are to a battery comprising a battery can; a negative electrode plate for battery, said negative electrode plate having a paste-like material which contains an active material and which is provided on the entire surface of a rectangular conductive porous substrate including edge portions extending along long sides of the substrate, said negative electrode plate

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being wound in a cylindrical shape to be inserted into said battery can; and a plate-shaped collector having ribs formed by raising part thereof, said ribs being resistance-welded to one of said edge portions of said conductive porous substrate while said paste-like material provided on said edge portions, wherein the relationship $0.25 < R < 2.5$ is satisfied, assuming that a specific electrical resistance of said conductive porous substrate is r_b , a thickness of said conductive porous substrate being t_b , a ratio r_b/t_b of r_b to t_b being R_b , a specific electrical resistance of said plate-like collector being r_c , a thickness of said plate-like collector being t_c , a ratio r_c/t_c of t_c to r_c being R_c , and a ratio R_c/R_b of R_c to R_b being R . The prior art does not teach the specific material and thicknesses as defined.

The most pertinent prior art has been presented. Kazuyuki (JP 2000-299,100) teaches a battery comprising a battery can; a negative electrode plate for battery, said negative electrode plate having a paste-like material which contains an active material and which is provided on the surface of a rectangular conductive porous substrate including an edge portion extending along long sides of the substrate, said negative electrode plate being wound in a cylindrical shape to be inserted into said battery can; and a plate-shaped collector having ribs formed by raising part thereof, said ribs being resistance-welded to one of said edge portions of said conductive porous substrate while said paste-like material provided on said edge portions. The reference does not teach an active material which is provided on the entire surface of the porous substrate, including edge portions extending along long sides of the substrate or that the relationship $0.25 < R < 2.5$ is satisfied, assuming that a specific electrical resistance of said conductive porous substrate is r_b , a thickness of said conductive porous substrate being t_b , a ratio r_b/t_b of r_b to t_b being R_b , a specific electrical resistance of said plate-like collector being r_c , a thickness of said plate-like

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collector being t_c , a ratio r_c/t_c of t_c to r_c being R_c , and a ratio R_c/R_b of R_c to R_b being R . The prior art does not teach specific material and thicknesses as defined.

In addition, Matsubara et al. (US 6,241,790) teaches a negative electrode plate for battery wherein a paste-like material containing an active material is provided on the entire surface of a rectangular conductive porous substrate including an edge portion extending along a long side thereof (col. 1, lines 10-22, col. 2, lines 1-15.) The step of winding the plate in a cylindrical shape to be inserted into said battery can is an intended use limitation. The negative electrode plate may be wound in a cylindrical shape and inserted into said battery can. The reference does not teach that the relationship $0.25 < R < 2.5$ is satisfied, assuming that a specific electrical resistance of said conductive porous substrate is r_b , a thickness of said conductive porous substrate being t_b , a ratio r_b/t_b of r_b to t_b being R_b , a specific electrical resistance of said plate-like collector being r_c , a thickness of said plate-like collector being t_c , a ratio r_c/t_c of t_c to r_c being R_c , and a ratio R_c/R_b of R_c to R_b being R . The prior art does not teach specific material and thicknesses as defined.

As the prior art does not teach a battery including a negative electrode plate with a conductive porous substrate, as claimed, and a plate-shaped collector having ribs formed by raising a part thereof and resistance welded to one of the edge portions of the conductive porous substrate coated with a paste-like active material and wherein the relationship $0.25 < R < 2.5$ is satisfied, assuming that a specific electrical resistance of said conductive porous substrate is r_b , a thickness of said conductive porous substrate being t_b , a ratio r_b/t_b of r_b to t_b being R_b , a specific electrical resistance of said plate-like collector being r_c , a thickness of said plate-like collector being t_c , a ratio r_c/t_c of t_c to r_c being R_c , and a ratio R_c/R_b of R_c to R_b being R , the

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claims are allowed. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky
Primary Patent Examiner
Art Unit 1745

Mark Ruthkosky
8/31/06